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Implementation of Integrated Vector Management in the WHO-African Region: Progress Report 2000–2003

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Abbreviations

AFRO	Regional Office for Africa (of WHO)
DDT	dichlorodiphenyltrichloroethane
DRC	Democratic Republic of Congo
ESACIPAC	East and Southern Africa Center for the Initiative for Parasitic Disease Control
GEF	Global Environmental Facility
ICIPE	International Center for Insect Physiology and Ecology
IFCS	Intergovernmental Forum on Chemical Safety
IMCI	Integrated Management of Childhood Illness
INC	Intergovernmental Negotiating Committee
ITN	Insecticide Treated Net
IVM	Integrated Vector Management
MoH	Ministry of Health
NIP	National Implementation Plan
NMIMR	Noguchi Memorial Institute for Medical Research
NSM	National Stakeholders Meeting
PEEM	Panel of Experts on Environmental Management
POP	Persistent Organic Pollutant
UNEP	United Nations Environment Program
VBC	Vector Biology and Control Unit
VCNA	Vector Control Needs Assessment

WHA	World Health Assembly
WHO	World Health Organization

About the Authors

Lucien Manga was born in Cameroon in 1965. He studied zoology at the University of Yaoundé. In 1992, he obtained a doctorate in animal biology with a specialization in medical entomology. In 1999, Dr. Manga successfully defended a PhD thesis in parasitology at the University of Montpellier, France. Dr. Manga worked for ten years at the OCEAC as a researcher in medical entomology, mainly on the ecology and bionomics of malaria vectors and malaria transmission dynamics in forested areas. He joined WHO in 1997 as head of the Vector Biology and Control Unit in the WHO Regional Office for Africa, in Harare. Dr. Manga has published several papers on malaria vectors and malaria vector control.

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Executive Summary

Until the 1970s, most countries in the Africa region had well-established vector control operations, focusing on chemical applications and targeting mosquito control in urban settings. However, for many reasons, vector control was phased out. Consequently, activities at country level were disrupted, and services were disorganized. The result was a dramatic decrease in human resources and logistical support, leading to the worsening and resurgence of vector-borne diseases. WHO/AFRO and its partners have initiated a program to implement integrated vector management (IVM) as a new strategic approach to vector control. In 2001, a workshop of policymakers and vector control experts took place in Harare and resulted in the preparation of a strategic framework for the African region. A strategic plan was further developed to initiate the implementation of IVM focusing on the planning, implementation, monitoring, and evaluation of IVM activities based on national frameworks and technical guidelines. The implementation of this plan has been initiated at regional and country levels.

Regional IVM training courses were organized in Nairobi, Kenya, September–October 2002, and in Accra, Ghana, October–November 2003. Participants were national entomologists working at the Ministry of Health or environmental officers. A total of 31 participants from 23 countries attended the courses. Two sets of guidelines—guidelines for the management of IVM and guidelines for vector control needs assessment (VCNA)—have been developed and are currently being printed for distribution to countries for their further adaptation and use. A project has been initiated to support six countries still relying on DDT for malaria control to develop IVM schemes that could be further used as alternative strategies for the only DDT application that will maintain effective vector control while reducing the use of DDT.

At country level, early steps for the introduction of IVM have been taken. National plans of action have been prepared in 16 countries and finalized in eight, and their implementation has been started. Vector control needs assessments and the organization of the national consensus workshop on IVM have been conducted in nine countries, and specific IVM projects have been prepared for selected districts.

In order to support all these efforts, the Partnership for IVM in Africa, called “IVM Africa,” was founded in Harare with six organizations initially: WHO, UNEP, ICIPE, the Environmental Health Project (EHP), The Hashimoto Initiative, and the Panel of Experts on Environmental Management (PEEM). Fifteen countries are participating. A collaborative framework was agreed upon and a work plan for the partnership prepared. WHO/AFRO was requested to be the interim secretariat for the partnership. The aim of the partnership is to promote the implementation of Integrated Vector Management as part of a broader integrated disease management strategy and as a way to prevent release of Persistent Organic Pollutants in the environment.

The experience gained so far shows that IVM is an attractive opportunity that is being accepted by countries when the necessary advocacy has been done. The IVM approach represents an excellent opportunity to establish much needed inter-sectoral dialogue and coordination both at international and national levels.

Resume

La plupart des pays de la région africaine menaient jusqu'aux années 1970 des opérations de lutte anti-vectorielle bien établies, se focalisant sur l'application d'insecticides pour la lutte contre les moustiques dans les zones urbaines. Cependant et pour plusieurs raisons, l'intérêt porté sur la lutte anti-vectorielle a disparu. Par conséquent, les activités au niveau des pays ont cessé, les services se sont désorganisés avec une réduction drastique des ressources humaines et de la logistique. Ceci a mené à l'aggravation et à la résurgence des maladies transmises par les vecteurs. C'est ainsi que L'OMS-AFRO et ses partenaires ont initié un programme pour mettre en œuvre la Lutte Intégrée contre les Vecteurs (LIV) comme la nouvelle approche stratégique. En 2001, un atelier de décideurs politiques et d'experts a eu lieu à Harare et a résulté en la préparation d'un cadre stratégique pour la région africaine. Un plan stratégique a ensuite été préparé pour initier la mise en œuvre de la LIV, ciblant les aspects de planification, mise en œuvre, suivi et évaluation de la LIV, sur la base de directives et de cadres d'orientation nationaux. La mise en œuvre de ce plan a débuté au niveaux régional et pays.

Des cours de formation régionaux sur la LIV ont été organisés à Nairobi au Kenya de septembre à octobre 2002 et à Accra au Ghana d'octobre à novembre 2003. Les participants, 31 au total étaient soit des entomologistes travaillant dans les ministères de la santé, soit alors des agents d'assainissement ou des ingénieurs sanitaires provenant de 23 pays. Des directives techniques ont été préparées pour la gestion des programmes de LIV et pour l'estimation des besoins en matière de lutte contre les vecteurs et sont actuellement en cours d'impression pour être distribué aux pays pour adaptation et utilisation. Un projet a été élaboré pour appuyer les 6 pays dont la lutte contre le paludisme dépend encore étroitement de l'utilisation du DDT pour le développement d'interventions de LIV comme stratégies alternatives à la seule application du DDT.

Au niveau des pays, les étapes préliminaires pour l'introduction de la LIV ont été accomplies. Des plans d'action nationaux ont été préparés par 16 pays dont 8 ont été finalisés et la mise en œuvre commencée. Les exercices d'estimation des besoins pour la lutte contre les vecteurs et l'organisation des ateliers nationaux de consensus pour la LIV ont été menés dans 9 pays et des projets de LIV pour des districts sélectionnés préparés.

Afin de soutenir tous ces efforts, le Partenariat pour la lutte intégrée contre les vecteurs dénommé « IVM Africa » a été fondé à Harare avec initialement 6 organisations : OMS, PNUE, ICIPE, Environmental Health Project, Hashimoto Initiative et le groupe d'expert pour l'aménagement de l'environnement (PEEM) et la

participation de 15 pays. Un cadre de collaboration a été mis en place et un plan de travail pour le partenariat finalisé. Il a été demandé à l’OMS AFRO d’abriter de façon intérimaire le secrétariat de ce partenariat. Le but du partenariat est de promouvoir la mise en œuvre de la LIV comme partie intégrale d’une stratégie plus large de lutte intégrée contre la maladie et comme un moyen pour prévenir la contamination de l’environnement par les polluants organiques persistants.

L’expérience accumulée jusque-là montre que la LIV est une opportunité attirante qui est bien acceptée par les pays lorsque les actions de plaidoyer nécessaires ont été bien menées. L’approche de la LIV représente également une excellente occasion pour établir le dialogue inter-sectoriel dont on a grandement besoin de même que la coordination aussi bien au niveau national qu’international.

Introduction

Vector-borne diseases remain a significant public health problem throughout Sub-Saharan Africa. Though efforts have been made to reduce morbidity and mortality of such diseases, especially malaria, they continue to increase in intensity and geographic extent because of insufficient action to break the transmission cycle.

Throughout the African continent, diagnosis and treatment of malaria cases and vector control have been the primary strategies for reducing mortality and morbidity. However, the burden of malaria is aggravated because of the continuous spread of resistance to anti-malarial drugs among parasites and insecticide resistance by vectors that pose a serious threat of increased severity of disease and death.

Chemical pesticides have been used in malaria control programs with varying success. Indoor residual house spraying with DDT was used for controlling malaria in Eastern and Southern African countries. Other pesticides such as Aldrin, Malathion, and Propoxur were used to control disease vectors.

The burden of vector-borne diseases and the need to reduce the reliance on pesticides in vector control are two compelling reasons for the promotion of Integrated Vector Management (IVM). IVM could be broadly defined as a process of evidence-based decision-making procedures aimed at planning, implementing, monitoring, and evaluating targeted, cost-effective, and sustainable combinations of vector control measures.

WHO/AFRO is promoting the use of IVM for the control of vector borne diseases in member states of the African region. To this effect, WHO is supporting countries to implement IVM in the following strategic areas:

1. Introducing IVM into national health policy
2. Conducting a needs assessment to identify vector control gaps
3. Conducting a national consensus workshop to promote partnership in IVM
4. Developing technical guidelines for implementing IVM
5. Increasing capacity to conduct operational research

This progress report document is intended to provide highlights to vector-borne disease program managers from Ministries of Health, Environment Officers, and their partners on the current status of implementation for Integrated Vector Management in the African Region.

The document is divided into three parts: Chapter 1 provides a brief history of the process to introduce IVM; Chapter 2 spells out the Regional Action Plan for IVM and

the status of its implementation; and Chapter 3 draws lessons from preliminary experiences of IVM at country level.

1. From Vector Control Programs to Integrated Vector Management

1.1. Situation of vector control before Integrated Vector Management

Until the 1970s, most countries in the African region had well-established vector control operations focusing on chemical applications and targeting mosquito control in urban settings. In southern Africa, programs were developed for malaria eradication and continued to receive the necessary attention. In West Africa, the Onchocerciasis Control Program based on vector control operation was initiated and today represents one of the most successful public health programs of recent times.

However, for many reasons, including the failure of the malaria eradication campaign, the cost of chemical application, an insufficient number of medical entomologists, and a lack of appropriate funding, interest in vector control diminished. Consequently, activities at country level were disrupted and services disorganized. The result was a dramatic decrease in human resources and logistical support except in Ethiopia, Madagascar, Swaziland, Botswana, Zimbabwe, and South Africa. The only activities in other countries that were carried on were done within individual vector-borne disease control programs on a limited scale or for research purposes (e.g., to develop and demonstrate insecticide treated nets).

1.2. The POPs agenda and the DDT debate

The 1992 United Nations conference on Environment and Development adopted Agenda 21, calling for the creation of the Intergovernmental Forum on Chemical Safety (IFCS). In 1995, the UN Environment Program (UNEP) requested IFCS and other international programs to assess 12 persistent organic pollutants (POPs). In 1996, information on the 12 POPs was reviewed during an IFCS meeting, and it was recommended that immediate action be taken to reduce or eliminate the 12 targeted POPs. The first meeting of the Intergovernmental Negotiating Committee (INC-1) for an Internationally Legally Binding instrument on 12 POPs took place in Montreal,

Canada, in 1998, and initiated the preparation of the Convention. Subsequent negotiations culminated in the preparation of the Stockholm convention.

In the course of the negotiation, an intense debate arose on the ban of DDT, based on its ecotoxicity to wildlife and its persistence in the environment. Opponents of the ban argued that DDT is an important weapon to fight malaria for countries that cannot afford to use expensive alternatives or where the mosquito vector species are resistant to the alternatives.

In the meantime, WHO endorsed the IFCS recommendations. In 1997, it adopted the resolution WHA 50.13 that requests member states to initiate efforts to reduce reliance on chemicals for vector control through the adoption of Integrated Pest Management approaches.

The INC process was mostly attended by delegates from Ministries of Environment who were counter-parts of UNEP at country level, designated as focal points for negotiating the POPs treaty. However, there was a lack of consultation with the Ministries of Health on the INC process. In order to bridge the gap and help African negotiators to make an informed decision at the INC meetings, WHO/AFRO organized a regional consultation on DDT.

The final text of the POPs treaty, which entered into effect on May 17, 2004, provides that governments will fast-track efforts to “assist countries in malarial regions to replace DDT with the increasingly safe and effective alternatives. Until such alternatives are in place, the Convention allows governments to continue using DDT to protect their citizens from malaria.”

The activities described below aided in achieving this outcome.

1.3. Regional consultation on DDT

The Regional consultation to move African countries towards reduction of reliance on DDT for malaria control was held in Harare, Zimbabwe, Feb. 8–10, 2000. The consultation was attended by participants coming from seven countries of the WHO/AFRO Region (Botswana, Eritrea, Madagascar, Namibia, South Africa, Swaziland and Zimbabwe) and participants from two countries of the WHO Eastern Mediterranean Region (Morocco and Sudan). The participants were drawn from various branches of the government including ministries (Health, Environment, Foreign Affairs, Tourism, Mines and Lands), from a university, and from a town council.

The objectives of the meeting were as follows:

1. To update participants on the ongoing POPs and INC process, with particular reference to the reduction and/or elimination of DDT and its implication for malaria control

2. To establish requirements and needs for countries to reduce reliance on DDT for malaria control within the existing country efforts to roll back malaria
3. To agree on appropriate actions for reduction of reliance on DDT to be incorporated into national plans of action for malaria control, without compromising the objectives and effectiveness of the overall plan
4. To make observations and recommendations on the DDT issue for consideration by participants in the SADC workshop and in the POPs treaty negotiations (INC-4).

The regional consultation on DDT made the following recommendations:

1. Countries currently using DDT for malaria vector control must establish and maintain a regulatory basis to ensure that DDT is used for public health purposes only. Countries will further need to strengthen capacity to monitor and enforce compliance with these regulations.
2. All strategies with the potential for sustaining reductions in cost and enhancing the availability of malaria and vector control tools should be evaluated and promoted.
3. Alternatives to DDT should be introduced gradually into Malaria Control Programs after investigation of insecticide resistance, status and prospects.
4. Monitoring and management of insecticide resistance should be strengthened and coordinated at national and regional levels.
5. Insecticide policy, legislation and inter-sectoral collaboration should enforce protection of alternative insecticides.
6. Inter-sectoral and regional collaboration should strengthen surveillance, research, and planning activities, and linkages should be established between health, environment, agriculture, and other sectors.
7. Delegates to this consultative meeting should inform the INC negotiators of their respective countries' participation in the next INC meetings on the technical, economic, health, and environmental issues in the use of DDT and potential alternatives for malaria control in preparation for the forthcoming INC meetings.

1.4. Recommendations to WHO and its partners

1. WHO should advocate and highlight, at any relevant and appropriate forum, the deep concerns of the participating member states on the possible economic and health implications of any restriction made on DDT use for malaria control.

2. WHO, in collaboration with partners, should ensure that the necessary technical and financial support is available to member states for implementation of integrated, evidence-based and cost-effective vector control programs to ensure sustainable reduction of the malaria burden.
3. WHO, with its partners, should support investments in research to develop new affordable, cost-effective and sustainable vector control methods including effective and affordable alternative insecticides.
4. WHO should commission a consolidated review of the potential economic, environmental, and health consequences for African countries planning to replace DDT with alternative insecticides for vector control.

Cognizant of the resolution of WHO and these recommendations, and of the fact that no steps had been taken to initiate their implementation, two major initiatives were taken by WHO/AFRO:

1. The development of a new approach to vector control
2. Resource mobilization to support countries in reducing reliance on DDT and implementation of the new approach

1.5. Workshop for the development and implementation of vector control intervention in the African Region

A workshop for the development and implementation of vector control intervention in the African region took place in Harare, Feb. 6–9, 2001. Participants of the meeting were policymakers from the Ministries of Health and Environment of 14 countries and experts in vector control, as well as representatives from UN agencies, governmental bodies, and nongovernmental organizations.

The objectives of the meeting were:

1. To review the current situation of vector control in the WHO African Region
2. To agree on strategies for the development and implementation of vector control interventions
3. To propose targets for the implementation of vector control intervention
4. To agree on a framework for the development and implementation of vector control interventions based on an IVM approach

The meeting discussed the current situation of vector control and the need to reorient policymakers to comply with the environmental requirements and to fit them within the ongoing reform of the health sector. Participants reviewed the draft strategic framework for vector control prepared by WHO/AFRO. The draft framework was developed on the basis of the situation analysis of vector control programs that was undertaken jointly by WHO/AFRO and the Environmental Health Project of the USAID.

The meeting adopted IVM as the new strategic approach for vector control and made the following recommendations:

A. Recommendations to countries:

1. Take steps to develop and implement national plans for IVM based on the guidance provided in the regional framework.
2. Take the necessary actions, including updating national health policies to meet the target set in the regional framework.

B. Recommendations to WHO:

1. Produce and disseminate as early as possible technical guidelines for the planning, implementation, monitoring, and evaluation of IVM.
2. Provide the necessary technical support to member states to implement the guidelines on IVM.
3. Submit the framework for the development and implementation of vector control interventions in the African Region to the Regional Committee for Africa for adoption.
4. Establish regional collaborating centers for quality control of insecticides in the African Region.
5. Undertake an advocacy campaign for the implementation of the framework in collaboration with its partners.

2. The Regional Action Plan for IVM

2.1. The Action Plan 2002–2007

The plan of action to implement the new strategic framework was prepared by AFRO soon after the February 2001 meeting in Harare. The plan developed for a six-year period (2002–2007) had the following objectives:

1. To support countries in the planning, implementation, monitoring, and evaluation of IVM activities based on national frameworks and technical guidelines
2. To support countries in the development of their capacity for the planning, implementation, monitoring, and evaluation of vector control interventions based on the IVM approach
3. To promote and support the implementation of evidence-based vector control interventions
4. To contribute to the strengthening of countries' legislative frameworks, regulatory mechanisms, and enforcement of these in relation to the promotion of IVM

2.1.1. Major activities planned

Based on the plan of action and objectives thereof, the following activities were planned:

1. Develop and disseminate technical guidelines for IVM
2. Provide technical assistance to the countries to prepare and adopt national frameworks for IVM
3. Provide technical assistance to countries to prepare national guidelines for IVM
4. Provide technical and financial assistance to countries to carry out situation analysis and vector control needs assessment
5. Organize four intercountry workshops (one per block) to prepare national action plans for IVM

6. Provide technical assistance to the countries in the implementation, monitoring and evaluation of IVM activities
7. Prepare and disseminate guidelines for community participation in IVM
8. Contribute to social mobilization for community participation in IVM in collaboration with other relevant programs
9. Provide technical support to the countries to establish or strengthen a vector control service at the central level of the Ministry of Health
10. Assist countries in the training and refreshment of nationals in the planning of IVM
11. Assist countries to establish or strengthen national entomology laboratories
12. Organize Training of Trainer (TOT) courses on IVM for French, English, and Portuguese speaking countries
13. Provide technical and financial assistance to the countries to organize national training courses for district health workers on IVM
14. Develop an operational research agenda in collaboration with relevant research institutions
15. Provide assistance to the countries in the implementation of operational research projects
16. Develop advocacy activities

2.1.2. Expected results

The expected results following implementation of the activities above were:

1. 42 countries would have adopted national frameworks and technical guidelines for IVM.
2. 42 countries would have prepared national action plans for IVM based on national frameworks and technical guidelines.
3. 42 countries would be implementing IVM interventions with the active participation of the community.
4. 42 countries would have established, strengthened or revitalized vector control services within their ministries of health.

5. 42 countries would have at least in 80% of their districts at least one technician trained and undertaking duties in relation to the planning, implementation, monitoring, and evaluation of IVM interventions.
6. IVM interventions would be planned based on the evidence provided by operational research in 42 countries.
7. In 23 countries, IVM would be enhanced by legislative frameworks and regulatory mechanisms.

2.2. Progress in implementation of IVM

2.2.1. Progress at the regional level

WHO/AFRO is spreading the process implementation of IVM by supporting countries in the following major areas:

1. Capacity building
2. Preparation of national action plans
3. Resource mobilization: the DDT/GEF project
4. Partnership for IVM

2.2.1.1. Capacity building

i) Training courses

The first regional IVM training course was organized at ICIPE (International Center for Insect Physiology and Ecology) in Nairobi, Kenya, Sept. 10–Oct. 22, 2002. Participants were national level entomologists working at the Ministry of Health and senior environmental officers. A total of 17 participants from 16 countries attended the course. Participating countries were as follows: Burkina Faso, Congo-Brazzaville DRC, Chad, Senegal, Gambia, Botswana, Kenya, Angola, Zimbabwe, Uganda, Cote D'Ivoire, Tanzania, Nigeria, Rwanda and Ethiopia.

The objectives of this training course were twofold:

1. To train participants on vector control program management with particular emphasis to IVM
2. To finalize action plans for capacity building for the introduction of the IVM approach in their country

The course was prepared in collaboration with the social mobilization and training team of WHO Headquarters using the South East Asia region training course on comprehensive vector control as a basis. The five-module structure of the course

focused on (1) basic biology, (2) epidemiology of vector-borne disease, (3) planning, (4) implementation, and (5) monitoring and evaluation. Participants during this course progressively learned IVM strategies and its potential in current health systems for vector-borne disease control. The last week of the course was devoted to the preparation of national strategic action plans for implementation of IVM.

A second regional training course on IVM targeting district health workers was developed and offered at the Noguchi Memorial Institute for Medical Research in Accra, Ghana, Oct. 6–Nov. 14, 2003.

Participants in this course included entomologists and environmental health workers dealing with vector control operations. Fourteen participants attended the course from the following countries: Burkina Faso, Congo-Brazzaville, Madagascar, Namibia, DRC, Senegal and Swaziland.

The objectives of the course were:

1. To train participants in vector control methods and the basic concepts of IVM
2. To enable participants to incorporate the components of IVM in the district plan
3. To develop action plans for capacity building on vector control in selected districts

At the end of the course, participants drafted projects to initiate IVM implementation in their respective districts.

ii) Development of technical guidelines

With the strategic framework in place and countries introducing IVM, there was an urgent need to define technical guidelines for the planning, implementation, and monitoring and evaluation of IVM. In this regard, the WHO/AFRO developed two sets of guidelines: guidelines for the management of IVM and guidelines for vector control needs assessment (VCNA).

iii) Guidelines for the management of IVM

These guidelines are intended to help policymakers, vector control, and environmental health workers (both at central and operational levels), and all stakeholders in their efforts to introduce the IVM concept and subsequently, to support the process for planning, implementation, monitoring and evaluation of IVM. The guidelines are to be used with the aim of facilitating the process of establishing, reorganizing, or strengthening vector control systems as subcomponents of the health care systems in order to deliver vector control interventions appropriately and efficiently. Because numerous *technical* manuals for vector control are available, they do not present the technical content of interventions. Rather, they provide sufficient references to the above-mentioned manuals. The IVM guidelines are a generic document that could be used as such or adapted to develop country-specific

guidelines for the implementation of IVM. The guidelines provide in a first section the overall IVM strategic framework. The second section provides technical orientations on the management of IVM, the third section addresses partnerships and resource mobilization, and finally, issues related to sustaining IVM are discussed. The document provides selected recommended materials to be used in conjunction with the guidelines.

iv) Guidelines for vector control needs assessment

The guidelines for VCNA were developed to support national authorities to assess capacity needs of countries to implement IVM. VCNA guidelines help public health authorities to identify policy, managerial and human resource needs. Although it was originally intended to assess specific needs that result from reduction of reliance on DDT, the guideline is adequate for use in the implementation of IVM strategy.

The VCNA guidelines also provide a framework to identify barriers and gaps to improve vector control programs. They contain a set of tools for data collection and address vector control issues not only for the health sector, but also environment and agriculture sectors. The draft VCNA guidelines, originally developed during an expert meeting of Roll Back Malaria in February 2000, were significantly amended to suit the African setting, based on critical comments received from program managers. These guidelines were field tested and finalized.

2.2.1.2. Resource mobilization: The DDT-GEF Project

As recommended by the Regional Consultation on DDT, WHO and its partners had to ensure that the necessary technical and financial support was available to countries for implementation of IVM. A proposal was made available to six countries still relying on DDT for malaria control to develop a project that would be submitted to the Global Environment Facility (GEF). These countries were: Eritrea, Ethiopia, Madagascar, Namibia, South Africa, and Swaziland. All countries and GEF endorsed the proposal for funding.

The objectives of the DDT-GEF project were:

1. To reduce, and where possible, eliminate the use of DDT for disease vector control in Eastern and Southern Africa by developing and strengthening integrated malaria control strategies
2. To develop and ensure the use of safe and cost-effective DDT alternative strategies under local conditions
3. To disseminate widely the results of the testing of alternatives, thus contributing to the reduction of DDT usage globally
4. To assist countries in dealing with the accumulation of DDT stockpiles for malaria control and to minimize adverse health and environmental effects from the misuse and inadequate storage of stockpiles

5. To contribute to the reduction of malaria mortality and morbidity by supporting the implementation of the global Roll Back Malaria initiative in countries still depending on DDT for malaria control

The project activities aimed at fulfilling the objectives included:

1. Establishment of steering committees at the national and regional level
2. Preparation of a needs assessment methodology
3. Regional meeting of participants
4. Assisted country-level needs assessments
5. Facilitated stakeholder meetings and preparation of national reports
6. Synthesis of needs assessment outcomes
7. Second regional meeting of participants
8. Preparation of a GEF project brief

2.2.1.3. The Partnership for Integrated Vector Management in Africa

The Partnership for IVM in Africa, called “IVM Africa,” was founded in Harare with six organizations at the outset: WHO, UNEP, ICIPE, EHP, the Hashimoto Initiative, and the Panel of Expert on Environmental Management (PEEM). Fifteen countries participated. A collaborative framework was agreed upon and a work-plan for the partnership was prepared. AFRO was requested to be the interim secretariat for the partnership.

The aim of the partnership is to promote the implementation of Integrated Vector Management as part of a broader integrated disease management strategy and as a way to prevent release of Persistent Organic Pollutants (POPs) pesticides in the environment.

The partnership defined the following objectives:

1. To support the adoption of IVM by countries as an approach for the prevention and control of vector borne diseases
2. To support countries in the implementation, monitoring, and evaluation of IVM strategies and interventions
3. To support countries in the reduction of human exposure and environmental contamination by POPs pesticides and particularly DDT

4. To support preparation and implementation of the Stockholm Convention National Implementation Plans
5. To document and disseminate appropriate and sustainable IVM practices

Broad areas of operations were identified. These included (1) reducing vector-borne disease transmission and the environmental release of POPs pesticides; (2) reinforcing the coordination and collaboration between ongoing IVM and other related activities; (3) supporting global, regional and national activities to achieve the above objectives, under two major inter-related areas: National Interventions for IVM and Stockholm Convention NIPs. Priority activities of the partnership will focus on:

1. Global and national consensus building and advocacy
2. Technical support for planning, implementation, monitoring, and evaluation
3. Production and dissemination of technical guidelines
4. Capacity building
5. Inter-sectoral collaboration
6. Documentation and dissemination of experiences

In terms of membership, the partnership will be made up of organizations, agencies, and programs with a stake in IVM. These will include relevant UN agencies, nongovernmental organizations, training and capacity-building institutions, development banks, and bilateral agencies operating in the African region. Each institution that is part of the partnership will designate a representative as a member. African countries are *de facto* members of the partnership.

The first activity undertaken by the secretariat of the partnership was to develop a concept note for resource mobilization in the context of the Stockholm Convention. This concept note was presented and discussed in a side meeting during the 7th meeting of the Intergovernmental Committee for the Stockholm Convention in Geneva (July 14–18, 2003).

2.2.2. Progress at country level

Progress made on IVM implementation at country level focused on the finalization and initiation of the implementation of national action plans for IVM and on the completion of the project development funds proposal for the DDT project. The 16 countries that had participated in the ICIPE training prepared a strategic plan based on the same outlines and with similar objectives. The general objectives of these action plans were to contribute to the improvement of vector-borne diseases prevention through the adoption and implementation of IVM. The specific objectives of these plans were:

1. To adopt national strategic frameworks for the implementation of IVM
2. To develop technical guidelines for the implementation of IVM
3. To build inter-sectoral collaboration for the implementation of IVM
4. To strengthen the vector control component of the existing health systems

Activities within these action plans included, *inter alia*, national stakeholders meetings, vector control needs assessment, and preparation of national guidelines and implementation of IVM in selected districts. At the end of the training, participants prepared three-year national action plans (2003-2005) for the development and implementation of IVM. Activities in these plans included national consensus building for IVM in national workshops; development and dissemination of technical guidelines for IVM; capacity building at national and district level for planning, implementation, monitoring and evaluation of IVM interventions; and initiation of IVM reference projects in selected districts.

2.2.2.1. Action plan development and implementation (Non-DDT users)

Among the 16 countries represented at the first regional training course on IVM in Nairobi, Kenya, eight countries finalized their national plans of action and sent them to WHO/AFRO for funding of preliminary activities. These countries are Burkina Faso, Congo-Brazzaville, Ethiopia, Nigeria, DRC, Senegal, Chad, Uganda and Zimbabwe. Requests were made to WHO/AFRO to fund three major activities: (1) vector control needs assessment; (2) the organization of the national consensus workshop on IVM; and (3) identification of districts suitable for IVM implementation. AFRO was able to provide technical and financial support to Burkina Faso, Congo-Brazzaville, DRC, Senegal, Chad, Uganda and Zimbabwe.

Burkina Faso was provided US \$17,000 to conduct inventory of stakeholders, organization of national consensus workshops, the preparation of national training on IVM, selection of districts for implementation of IVM and establishment of an entomology laboratory.

Chad received US \$15,000 to organize a national consensus workshop on IVM, and to conduct VCNA at the national level and in two selected health districts.

Congo-Brazzaville was provided US \$11,000 to conduct a national consensus meeting and for VCNA, to identify stakeholders, and to initiate national IVM training courses.

DRC received US \$24,000 to organize a national consensus workshop on IVM, and to conduct VCNA at national level and in two districts.

Senegal was provided with US \$17,000 to conduct a national consensus workshop on IVM and to elaborate and distribute technical guidelines on IVM.

Uganda received US \$17,000 to convene a national workshop on IVM, and to finalize the national IVM framework.

Zimbabwe obtained US \$8,000 to convene a national consensus workshop and to develop technical guidelines on IVM.

To date activities have been completed in Chad, Congo-Brazzaville, and DRC while the process is still ongoing in the remaining countries.

2.2.2.2. Action plan development and implementation (DDT-users)

Two major activities were conducted in each of the target countries: (1) vector control needs assessment; (2) a national consensus workshop, including preparation of IVM projects for selected districts.

1. Vector control needs assessment

In order to assess the capacity needs of countries to implement IVM, an international consultant was recruited to facilitate the needs assessment exercise in the participating countries. The generic process for conducting the VCNA involved the following steps:

1. Briefing malaria control program managers about activities of VCNA
2. Identifying steering committee members
3. Sending out invitations to national steering committee members
4. Establishing national steering committees
5. Data collection
6. Drafting the VCNA report
7. Review by the steering committee
8. Developing Draft 2 of the report

As mentioned earlier, the VCNA process led to the establishment of multi-sectoral committees at country level with representation from Ministries of Health, Environment, Agriculture, and Land and from academia. It represented the initial step at the national level multi-sectoral coordination body for IVM. The summary of needs for DDT and non-DDT users is summarized in Annex 1.

2. National consensus workshop

The aim of the national consensus workshop is to bring together stakeholders to address vector control intervention in the context of IVM.

The specific objectives of the consensus workshop were:

1. Agree on the plan of action on the national framework of integrated vector management
2. Agree on capacity requirements including research for implementation of IVM nationally in accordance with the conclusions of the VCNA
3. Select districts for the project implementation
4. Agree on the draft the project plan of action for the selected districts

3. Lessons Learned and the Way Forward

The WHO Regional Office for Africa has made great strides in the implementation of IVM. Significant progress has been made to establish a solid basis for implementation of vector control activities in the framework of IVM. On the long road from concept to implementation, many lessons have been learned and challenges as well as constraints encountered at different levels:

1. IVM is an attractive opportunity that is being accepted by countries when the necessary advocacy has been done. Through strategic and programmatic support provided to countries in the incorporation of IVM into national health policy, capacity building, and multi-sectoral stakeholders participation, significant achievements were made in the implementation of IVM. In DDT-using countries, during various consensus-building meetings, countries have drafted a proposal and developed a four-year action plan to implement IVM in selected districts. Therefore, given the necessary technical and financial support, countries will be willing to implement the IVM strategy. One of the proofs is the reestablishment of vector control units in countries that have embarked on IVM such as Burkina Faso, Congo-Brazzaville, Chad and DRC.
2. The IVM approach represents an excellent opportunity to initiate inter-sectoral dialogue and coordination both at the international and the national level. The VCNA exercise demonstrated that the multi-sectoral interactions that are required for the implementation of IVM were not only possible, but also feasible. The lack of integration with other sectors, including agriculture and environment, inhibits the implementation of IVM. The need for coordination between different sectors is also important in the implementation of the Stockholm Convention and is required in the development of its National Implementation Plans (NIPs).

The implementation of IVM activities provided a forum of solid collaboration and successful working relationships between the UNEP (environment sector) and the WHO (health sector). This will certainly facilitate the expansion of IVM and tackling the issue of preventing human exposure and environmental contamination from POPs pesticides.

3. VCNA helps countries to adequately identify gaps in policies, strategies, and resources for vector control and pesticide management issues as well as managerial and human resource needs. It's a set of tools addressing not only vector control issues, but also issues related to the environment and agriculture

sectors. This will enable program managers and policymakers to establish appropriate structures to strengthen vector control programs and even to form vector control units where they do not exist. Chad, for example, did not have a vector control unit at the central level, and after the VCNA process, they were able to form a new unit. Swaziland determined that it does not have policy on pesticide registration and hence the need to develop one. A few countries also determined that they lack national legislation addressing the management and use of pesticides to promote the proper use of pesticides and to implement the Stockholm Convention.

4. The IVM process takes time, but policymakers need to see evidence on the effectiveness of this approach for further commitments of resources. The implementation of IVM based on selective and targeted vector control intervention requires adequate capacity to effectively plan, monitor, implement, and evaluate such interventions. Such capacities were nonexistent in most countries and to channel the meager resources available to develop such systems needs strong evidence to demonstrate the efficacy of IVM in the reduction of morbidity and mortality resulting from vector-borne diseases.

3.1. Major challenges and constraints

3.1.1. Regional level

1. Lack of funding for vector control services at various levels because preventive interventions are not receiving the full attention of program managers in some countries.
2. Initial work on IVM focuses on building the delivery systems for vector control interventions. This process takes time and delays operation of the overall IVM strategy. As a result, the impact of IVM interventions will take time to be seen while policymakers urgently need IVM proofs of principle so that they can commit resources in this area. For instance, the impact of the Integrated Management of Childhood Illness (IMCI) was easier to see because case management for IMCI targeted practices that were already being undertaken. For IVM, vector control services that are essential for its delivery are nonexistent in some countries of the African Region.

3.1.2. Country level

The vector control needs assessment conducted in participating countries helped to identify obstacles and needs as summarized in Annex 1.

The way forward is to maintain a strong support for IVM implementation in the African region through the established partnership, to encourage countries in their effort to establish IVM, and to advocate that WHO prioritizes IVM and recommends it internationally as a political decision. WHO/AFRO should continue to organize

IVM training courses in order to train more health workers to increase the necessary manpower for implementation of IVM strategies in countries.

At the same time, WHO/AFRO and partners should ensure monitoring and evaluation of IVM implementation in countries by calling up partnership meetings in which countries will present their progress in IVM implementation.

4. Conclusion

Integrated Vector Management is currently recognized by all, at both international and national levels, as the best and most appropriate strategic option to implement vector control as part of disease management, including prevention of environment contamination by POPs pesticides. Thus, as an ongoing process, there is need for more advocacy and support through an established partnership.

Annex. Vector Control Needs Assessment: Constants for Implementing IVM

VCNA analysis

The following major barriers or bottlenecks for implementation of IVM were identified during the needs assessment exercise for six DDT-using countries and non-DDT users:

In DDT-using Countries

1. Policy Framework

- a. Incorporating IVM into national health policies to effectively plan and implement various vector borne diseases in the country

Ethiopia, Namibia, Madagascar, Swaziland

2. Pesticide Legislation and Regulation

- a. Developing a national legislation, regulation, or enforcement on transportation usage and management of public health pesticides and to ensure the use of DDT only for vector control purposes

Ethiopia, Madagascar Namibia, Swaziland

- b. Review the legislation on insecticides and insecticide treated nets (ITNs) tariffs and importation for vector control as stated in the Roll Back Malaria Abuja declaration

Ethiopia, Namibia, Swaziland

- c. Establishment of an insecticide registration board to facilitate the registration of alternative insecticides and harmonize the importation of pesticides

Ethiopia, Namibia, Swaziland

3. Technical Guidelines on IVM

- a. Develop and implement national guidelines on vector control regulation through principles of IVM

Ethiopia, Madagascar, Namibia and Swaziland

4. Organization

- a. Developing clear outlines of job descriptions of vector control experts and establishing formal mechanisms of information exchange between regions and districts to coordinate programs of work

Ethiopia, Madagascar, Namibia

5. Resources

- a. Capacity building of skilled manpower on IVM at the central and regional level that will be able to plan, monitor, and evaluate vector control intervention by training entomologists and environmental health officers through post-graduate training and in-service training
- b. Regular training on safe disposal of obsolete pesticides for malaria control program managers

Ethiopia, Madagascar, Namibia

6. Infrastructure

- a. Developing capacity for operational research through establishment of facilities such as functional insectary and entomology laboratories at the district and regional levels and developing capacity for maintenance of vector control equipment
- b. Need to establish pesticide quality assurance facility or strengthen the capacity of existing institutions to undertake quality control activities and developing pesticide quality inspectors for evaluating insecticides for public health purposes.
- c. Building a warehouse or maintenance of existing one in all the regions

Ethiopia, Madagascar, Namibia, Swaziland

7. Inter-sectoral Collaboration

- a. Consolidate partnership between agriculture, environment, malaria control, research and academic institutions at the national and regional level to promote the implementation of IVM with responsibility and accountability, and incorporate NIPs to meet the obligations of the Stockholm convention

Ethiopia, Madagascar, Namibia, Swaziland

Non DDT-using countries:

1. Policy Framework, Legislation And Regulation

- a. Incorporate IVM into National Health policies in order to effectively take into account vector-borne diseases other than malaria in the country

Burkina Faso, Chad, Congo-Brazzaville, DRC, Senegal

- b. Review and apply legislation on insecticides and ITNs tariffs and importation for vector control as stated in the Roll Back Malaria declaration of Abuja

Congo-Brazzaville

- c. Reinforcing regulation on insecticide management

Congo-Brazzaville

2. Technical Guidelines On IVM

- a. Develop and disseminate technical guidelines to implement IVM in the country

Congo-Brazzaville, Senegal, Zimbabwe

3. Organization

- a. Developing clear outlines of job descriptions for vector control experts and establishing mechanisms of information and logistics between districts and regions
- b. Resource mobilization for IVM activities

Congo-Brazzaville, Chad

4. Resources And Infrastructure

- a. Build and equip a national medical laboratory for IVM activities including training of entomologists and environmental health officers
- b. Support in communications, information, and logistics for IVM activities

Congo-Brazzaville, Chad, DRC

5. Inter-sectoral Collaboration

- a. Consolidate partnership between health sectors and outside health sectors (agriculture and environment); establish a national task force for IVM; develop common programs for resource mobilization for IVM activities

Congo-Brazzaville